Computer Sciences Corporation
Federal Sector/Civil Group
Wallops Island, VA 23337

CI - Continuous Improvement Submittal

Date: 8 December 2000

Initiator: Monica Borowicz

Specific Objective (What):
Additional equipment: Sigma 2000 Gas Chromatograph for Analysis of Hydrazine, monomethyl hydrazine and icing inhibitors.

Implementation Strategy and Schedule (How and When):
The Sigma 2000 GC was purchased in July 1985. At that time, state of the art columns were 1/8 inch. All pneumatics and injections ports were compatible to large sample injections. State of the art GC's today are based on wide bore, 0.53 mm columns, or smaller, and micro liter injections which have considerably improved component separation and qualitative results.

Although we have reconfigured the Sigma 2000 to handle wide bore columns, the configuration does not provide all the advantages associated with presently available instrumentation.

The Chemistry has been advised by the manufacture that the master control board and possibly some other electronic components are not longer available for the Sigma 2000 and will no longer be maintained by the Manufacture and at this time the Gas Chromatograph needs to be replaced.

The GC is used primarily for analyzing icing inhibitors in jet fuels. By performing this work on site the lab is able to provide rapid turnaround on results. In comparison, outside labs typically provide results in three to four weeks. Faster turnarounds are usually available at a premium, two to three time's standard turnaround costs. Several labs in the region have been contacted none of which are setup to handle the raw material. In addition, jet fuel is a hazardous material and sample-shipping requirements are more rigorous and costly.

I propose a new state of the art GC with modifications which would allow the chemistry lab to perform more than one application. Modifications to the icing inhibitor setup will allow for hydrazine assay and monomethyl hydrazine analysis. Hydrazine is used in jet and rocket fuels.

Estimated Yearly Savings:
Currently the chemistry laboratory analyzes ~125 samples/year of Jet Fuel.
Cost of analysis by outside lab. - $275.00/1 Liter sample
Containers = $7.71 each of 4 x 16 oz UN shipper with EPS Foam inner.
$1.05 each 16 oz bottle.
Shipping Fed Ex = ~$50.00 over night or same day. Limit 10 Liters per container.
The total cost per month **= $2860**

Analysis of Hydrazine – White Sands NASA Facility, New Mexico is the only lab analyzing Hydrazine. It is an extreme hazardous material and best to analyze on site.

Estimated Continuing Savings:
Estimated cost for Gas Chromatograph for Analysis of Hydrazine, monomethyl hydrazine and icing inhibitors. = **$43,500**.

The total cost of continuing savings for a year for Jet Fuel = **$34,320**.

In one year the total cost of sampling analysis would justify for an additional Gas Chromatograph for Analysis of Hydrazine, monomethyl hydrazine and icing inhibitors.

Hydrazine, monomethyl hydrazine not applicable due to availability of labs performing analysis.

Aircrafts fueling will increase at Wallops Flight Facility in the future.

Task Assignment Monitor Consulted? **Yes** **No** **Date: 07 Feb. 2000**
Robert Nock